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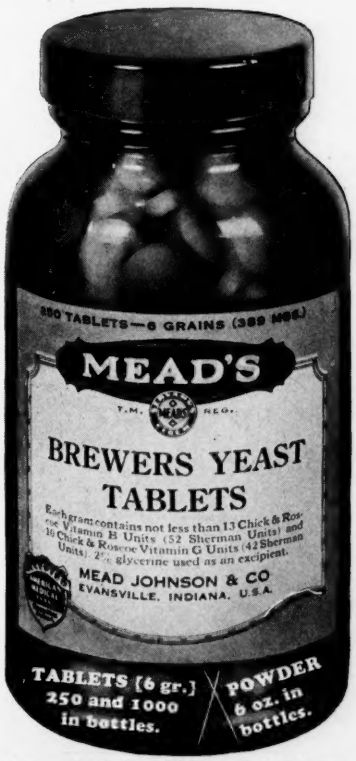

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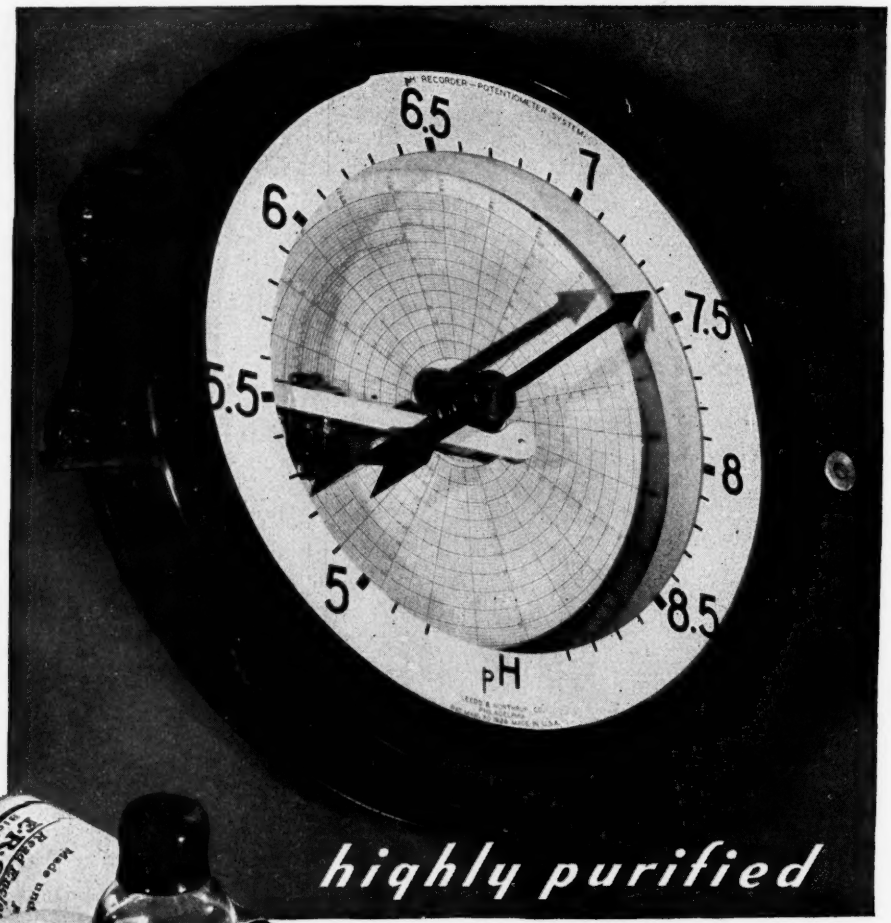

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ORIGINAL ARTICLES

A STUDY OF NASAL INFECTIONS*

By JAY N. FISHBEIN, M.D.

221 ANGELL STREET, PROVIDENCE, R. I.

and

EDGAR J. STAFF, A.M., Sc.M.†

Although the nose and the paranasal sinuses are generally accepted as the portals of entry of so many local and systemic infections, the amount of data available in the literature concerning the penetration of infection through the epithelium, the manner in which the infection spreads in the subepithelial tissues and the resulting changes, is surprisingly meager.

There is, however, a considerable amount of literature regarding the treatment of infections of the nose particularly surgical. When sinus surgery was introduced into this country by men who had studied in the European clinics, some excellent results, or more accurately, spectacular results were obtained. Because of this, radical operations became the vogue and to a lesser degree still is. By radical surgery is meant such procedures as effect marked alterations of the normal mechanical arrangement of the tissues comprising the lateral nasal wall. Not only was it considered necessary to remove every bit of cell structure, but also every vestige of membrane that appeared to be pathological. Operation followed operation until the phrase "once a sinus operation, always a sinus operation" has become axiomatic and has served to prejudice the laity and the profession at large.

In an attempt to treat infections of the nose and sinuses by conservative means, the application of diathermy was undertaken and a preliminary report was published in 1933.[1] Its use was found to be effective in the treatment of nasal infections, particularly of the ethmoid sinuses. This treatment combines the use of diathermy with tampons and tends to increase the efficacy of the latter.

*Read before The Rhode Island Medical Society March 7, 1935.

†Senior Bacteriologist, State Public Health Com. Lab.

Method of Application

The positive electrodes are long narrow ribbons about ⅜" wide and a yard long consisting of continuous fine strands of copper closely woven (resistance about 60 m.a. per sq. inch). A piece of long fibre cotton is laid in the flat of the hand, and rolled evenly about the tape by means of a smooth applicator. (It is essential that the cotton covers the ribbon completely to avoid an unpleasant prickling sensation in the nose.) The tampon is saturated with a 7% solution of a mild silver protein containing 2 c.c. of 3% ephedrine sulphate to the ounce and inserted into the middle meatus as far back as possible in the direction of the sphenoid sinus, one on each side, following which the applicators are withdrawn. Preceding this a smaller tampon is inserted high into the olefactory fissure. The tampon is prepared in accordance with the space it is to occupy in the nose. It should never be so large as to require any force in its insertion. It is important that the delicate mucous membrane sustains no injury.

The indifferent or dispersive electrode is placed on the forehead. It consists of a piece of block-tin 4x14 c.m. fastened to an ordinary leather head band. A strip of ribbon similar to that used for the positive electrode connects it to one of the poles of the diathermy machine. The block-tin may be sparingly covered with a lubricant jelly where it comes in contact with the skin. The two ends of the ribbon from the nostrils is connected to the other pole. A current of from 300 to 500 m.a. is employed for a period of from fifteen to twenty minutes. When the tampons are removed at the end of this period they are found to be quite warm, decolorized and practically dry. Frequently stringy collections of mucus will be found to adhere to the tips of the tampons, which are removed with them as they are withdrawn.

The warmth produced by diathermy is termed conversive heat within the tissues as contrasted with conductive or convective heat which does not penetrate deeply into the body. It is a long wave and high frequency current converted into comfortable heat by the resistance of the tissues. Its object is to

produce an active hyperemia, to soften and liquefy deposits, increase elimination of toxins and hasten repair processes so that the injured membrane may resume its normal function.

Acute and chronic infections of the nose and accessory sinuses particularly the frontal, ethmoid and sphenoid, are benefited by the effects of the diathermy and the heat generated in the tissue, the action of the colloidal silver, as well as by the improved aeration and drainage of the upper air passages. Repeated trials have shown that the 7% solution is equally as effective as the much stronger solutions generally in use and less apt to cause local irritation.

Treatment in the following conditions have proven effective: rhinitis, acute, and chronic, hyperplastic, and hypertrophic. Also in the case of allergic conditions as Hay Fever and Asthma; acute and sub-acute, and chronic sinus infections. This work was carried on for a period of five years during which over 400 patients were treated, receiving a total of about 6500 treatments, of which 355 were chronic cases and 45 were acute or sub-acute. It can be used on children who are old enough to cooperate. A large number of the patients were Jewish, among whom there was a greater prevalence of nasal infections. These occurred in the ratio of 5 Jewish to 3.5 non-Jewish patients.

There is no more discomfort with the diathermy than there is with the tampons used alone, and by inserting them gently even this discomfort can be greatly mimimized. The patient experiences a mild agreeable sensation of warmth in the nose as a result of the diathermy and occasionally in the forehead from the indifferent electrode. The current is begun at 250 m.a. and increased gradually to the point of comfortable heat. The patient should never be left alone while the treatment is being given. Occasionally as the solution is absorbed the tampon may become uncomfortably warm. Secondly the psychological effect upon the patient on being left alone is harmful. Of the 400 patients treated only three objected to the treatment; one because of an innate fear of anything electrical; the other two because of discomfort immediately following the treatment as congestion of the nasal membranes or a profuse discharge, accompanied by sneezing. If too strong a current was used some of the patients would occasionally complain of a sensation of pain or numbness in the teeth. This was particularly true if any dental pathology existed.

It was thought desirable to determine whether there was any penetration into the subephithelial tissue. There appears to be very little literature available on this subject. In corresponding with E. R. Squibb & Sons, manufacturers of Solargentum, A. C. Barns & Co. manufacturers of Argyrol, Parke-Davis Co. manufacturers of Neosilvol and others, none of them could say definitely that absorption into the mucous membrane takes place. Barnes & Co., "while we cannot say definitely that absorption takes place, it is strongly probable, in fact almost certain that tissue reaction results which probably includes a certain amount of absorption."

Occasionally some question arises from the possibility of argyria from the prolonged use of these silver preparations. This danger has unquestionably been greatly exaggerated. In many of these cases treatment was extended over a considerable period of time without the slightest evidence of silver deposits. This fear doubtless persists from the days when it occurred more commonly, due to the widespread use of strong silver preparations in the treatment of epilepsy, tabes dorsalis, peptic ulcers, etc., used internally or injected intravenously. Local argyria has occasionally been caused due to the long-continued applications particularly in ocular conditions where the prescription was refilled without the knowledge of the physician.

Since bacteria are commonly found in the subepithelial tissue and about the glands and bloodvessels in chronic cases, the question of penetration is obviously an important one. In attempting to determine the degree of penetration some experimental work was carried out on rabbits. A narrow tampon saturated with a 10% colloidal silver solution was inserted into one nostril and connected with the diathermy similarly to the method in use with the patient. The same precedure was carried out in the other nostril which was not connected to the diathermy. The head of the rabbit was shaven and a specially constructed block-tin helmet was adjusted and a current of 300 m.a. was employed for a period of 15 minutes. To make the rabbit sufficiently submissive to allow this treatment the following procedure was carried out. The lateral ear vein of the rabbit was injected with morphine and scopolamine by Harry Pearse* 30 minutes in advance. The average dose employed was ¼ morphine and 1/150 scopolamine. Considerable variability in the reactions of the rabbits were found, although rabbits of the same weight were chosen.

*Harry Pearse, M.Sc., Director of Laboratories.

This procedure was given up as unsatisfactory as it was found impossible to obtain an intact membrane. The extreme narrowness of the nostril of the rabbit caused some abrasion when the tampon was inserted and where the epithelium had been denuded, a deeper penetration into the sub-epithelial tissues occurred.

To secure an uninjured membrane the following procedure was next carried out and which proved to be more satisfactory. The rabbit was chloroformed and the head split sagitally through the septum which was carefully removed, leaving an uninjured mucous membrane on the lateral nasal walls. This surface of one side was covered with a 20% solution of colloidal silver. To approximate natural conditions as closely as possible the section was immediately placed in the incubator at a temperature of 37.5°C. for a period of twenty minutes (although lymphatic and capillary action is obviously lost.) The other half of the head was subjected to diathermy in the following manner: A tampon was placed on the membrane and saturated with the same 20% solution. A block-tin electrode was fashioned to conform to the lateral surface of the head with bands overlapping to keep the tampon in place. The specimen was subjected to a current varying from 400 to 700 m.a. for 20 minutes. The current was adjusted to give a sensation of mild heat to the touch, similar to that experienced by the patient, and was increased or decreased as was found necessary. At the end of the twenty minute period both specimens were exposed to the ultra violet rays for a period of 3 minutes. They were next immersed in normal saline for several minutes and then placed in formaldehyde. Sections were prepared in the laboratory by Mr. Pearse.

On examination the specimens that had not received diathermy showed that the membrane had absorbed very little of the colloidal silver. Practically all of the solution remained on the surface. In a few areas some of the ciliated epithelial cells showed a little of the dark brown stain. In none of the sections studied did the solution penetrate deeper than these lining cells. The specimens that had undergone the diathermy treatment showed a much deeper penetration. In many areas the solution was found in the areolar subepithelial layer and occasionally it was found that penetration had occurred to a depth of about a third of this layer. This penetration was by no means uniform, and occurred only in scattered areas, but was sufficient to establish the essential difference, namely that diathermy did cause penetration beyond the epithelial layer.

The principal reaction to infection takes place in the connective tissue elements. There is a marked increase in the tunica propria and about the blood-vessels. The greatest evidence of infection is apparent about the vessels of the subepithelial areolar tissue as evidenced by the marked perivascular cellular infiltration.

The diathermy treatment tends to stimulate the activity of the mucous glands. Following the treatment there is usually a thin serous or mucoid discharge lasting for several hours and the result is a considerable depletion of the turgid tissue. The patient experiences a sense of relief and a feeling of clearness of the head with a loss of the dullness that they usually complain of at the bridge of the nose. This change may last for one or several days at the onset of the treatments. As they are continued, usually weekly at the onset, this period of relief gradually increases until the patient will remain free of symptoms from one visit to the next. Six to ten treatments usually are sufficient to bring this about. As the condition improves the treatments are given bi-monthly and later increased to monthly intervals. Headache which is one of the most common symptoms gradually lessens in severity and frequency and often disappears. The improvement may be attended with remissions which are frequently the results of "colds" to which these patients are prone.

The changes are definite and often quite marked. Dry membranes, occasionally showing an accumulation of tenacious mucus in the posterior nares and naso-pharynx would undergo improvement. Edematous and even polypoid tissue would show satisfactory changes. Many of the cases that remained under observation for a period of years showed this improvement to persist without remission or symptoms other than one would expect to find in the average individual who had no previous difficulty. Usually these patients will remain comparatively free from colds once the condition has cleared up.

The results were most satisfactory with infection of the ethmoid, frontal and sphenoid sinuses. Where the maxillary sinus was also found to be involved the progress was less satisfactory. This sinus usually shows greater pathological changes

because of the difficulty in drainage due to the unfavorable location of the ostium. In the normal sinus the cilia will carry any foreign matter up to the ostium which opens into the middle meatus. When this defensive mechanism becomes impaired a stubborn infection may result. In those cases in which the antrum showed definite pathology, a large opening was made with a rasp under the inferior turbinate to aid in the drainage and aeration of the sinus. Conservative treatment that is designed to aid nature will in most cases cause a regeneration of the mucosa despite infection. This fact was demonstrated by Knowlton and McGregor[2] in their experiments. The restoration or stimulation of the mucous glands is a matter of considerable importance because the mucosa is the greatest safeguard against bacterial invasion.

Linton[3] claims that the factors of greatest importance in the struggle of the mucosa against invasion are mucus secretion, ciliary action and phagocytosis. Mucus secretion is necessary for the surface activity of both cilia and phagocytes. Ciliary action keeps the viscous film of mucus moving towards the pharynx, thus dooming to destruction all but a very small portion of potential infections. Phagocytic activity is thus confined largely to those cases where the function of the mucociliary layer has failed. Anything that would tend to lessen ciliary activity or alter the nature of the mucous secretion would naturally be conducive to bacterial invasion.

A bacteriological study of the nose was made to determine the changes that took place as a result of treatment. This work was carried out by Mr. Edgar J. Staff of the bacteriology department over a period of two years, during which time 450 cultures were taken. Cultures were made on blood agar plates before and after treatment. To avoid the possibility of contamination only two applicators sterilized in individual test tubes were used. The vestibule was carefully cleaned with a bichloride of mercury solution and a nasal speculum with wide, square flanges was used. A series of treatments were given as controls, where the diathermy was used only on one side with the tampons alone on the other side. This series was conducted to determine the amount of reduction in bacteria that would occur from the mechanical effect of the tampon and the action of the colloidal silver, as compared with the action of the diathermy.

The results were as follows: It was found that the action of the diathermy resulted in a reduction of the organisms from 70 to 80% as compared with a reduction of 15 to 30% without its use. Three sets of cultures were taken, one from the septum, one from the middle meatus and one from the superior meatus at different times. The greatest reduction in the number of organisms occurred in the first series which ranged from 80% reduction to sterile cultures. The cultures taken from the superior meatus showed a reduction of from 70 to 90%. With the cultures taken from the middle meatus considerable variation occurred. In many instances the organisms were far more numerous after treatment than prior. This was explained by the fact that the treatment resulted in a shrinking of the turbinates with greater drainage from the ethmoid cells and from the maxillary sinus. As the treatments progressed, however, cultures taken from this region also showed a reduction in the organisms found both before and after treatment. These changes coincided with the clinical improvement. The staphylococcus albus predominated in the cultures taken, occurring in 84.5% of the cases. The staphococcus aureus were next in frequency, being found in 57% of all cultures. Contrary to the prevalent idea, the fact has been recently established that the staphylococci also produce an exotoxin. The diphtheroids, which are ordinarily considered to be present 98 to 100%, were present only in 26.5%. As time went on the staphylococci and streptococci diminished in number with the appearance and proportionate increase of bacilli, diphtheroids, micrococus catarrhalis, yeasts, spore forming bacilli, and other of the common inhabitants of the nose. Although the staphylococci predominated in the largest number of cultures, the patients with streptococcic infections were the ones that showed the most clinical symptoms, both local and general. These were nasal obstruction, discharge, headache, lassitude. Despite the fact that these organisms were more virulent in the reactions they caused, their resistance to treatment was no greater than was shown by most of the other forms. After a series of treatments these bacteria would disappear from the nose. In some cases they reappeared in cultures taken months afterwards when the patient was no longer under treatment but they produced no clinical symptoms.

Four bacteriological case records are given:

MR. S. S.

Diagnosis: Chronic Ethmoiditis, 4 years duration

"A" Cultures	*"B" Cultures*	*Cultures from*
April 12, 1934		
400 Strep. Viridans—pure culture	Approx. 75 col. Strep. Vir.	Middle Meatus
May 2, 1934		
200 Strep. Viridans	Heavy growth Strep. Vir.	Middle Meatus
60 Staph. Albus	20 Staph. Albus	
May 24, 1934		
40 Staph. Albus	Heavy growth Strep. Vir.	Middle Meatus
20 non-Hemol. Strep.	2 Staph. Albus	
June 16, 1934		
Very heavy growth Strep. Vir.	10 Staph. Albus	Middle Meatus
Staph. Albus and M. Catarrhalis	40 M. Catarrhalis—2 Diphth.	
July 9, 1934		
150 Strep. Viridans	20 Staph. Albus	Middle Meatus
Heavy growth Albus	2 Strep. Viridans	
Few col. M. Catarrhalis		
August 15, 1934		
100 M. Catarrhalis	6 Staph. Albus	Middle Meatus
30 Staph. Albus	3 Diphtheroids	
Few Diphtheroids	30 M. Catarrhalis	
September 20, 1934		
6 Staph. Aureus	9 Staph. Aureus	Middle Meatus
50 M. Catarrhalis	20 M. Catarrhalis	
October 4, 1934		
Heavy growth of Staph. Albus and Aureus	4 Staph. Albus	Superior Meatus
November 25, 1934		
27 Strep. Viridans	Sterile	Septum
February 2, 1935		
Very heavy growth of Strep. Vir.	75 Strep. Viridans	Middle Meatus
1 Pharyngis Siccus		
3 Moulds		

Last two cultures showed a reappearance of Strep. Viridans but with no clinical ill-effects.

MR. M. C.

Diagnosis: Chronic Rhinitis

"A" Cultures	*"B" Cultures*	*Cultures from*
April 12, 1934		
600-700 Staph. Albus	200 Staph. Albus	Middle Meatus
200-300 non-Hemol. Strep.	100 non-Hemol. Strep.	
May 14, 1934		
22 Staph. Albus (3 Hemolytic)	20 Staph. Albus (7 Hemol.)	Superior Meatus
June 19, 1934		
30 Staph. Albus	10 Staph. Albus	Middle Meatus
100 Diphtheroids	10 Diphtheroids	
40 M. Catarrhalis	8 Staph. Aureus	
4 Staph. Aureus		
July 18, 1934		
4 Staph. Albus	2 Staph. Albus	Septum
2 Fungi	6 Fungi	
October 12, 1934		
15 Diphtheroids	12 Diphtheroids	Middle Meatus
6 M. Catarrhalis		
December 21, 1934		
10 Diphtheroids		
40 Staph. Albus	70 Staph. Albus	Middle Meatus
8 M. Catarrhalis	20 M. Catarrhalis	

MISS V. H.

Diagnosis: Chronic Sinusitis—Ethmoid and Max.

"A" Cultures	*"B" Cultures*	*Cultures from*
April 14, 1934		
Heavy growth of Hemol. Sta. Aureus and Strep. Viridans	No apparent reduction	Middle Meatus
May 8, 1934		
300 Hemol. Staph. Aureus (++)	30 Hemol. Staph. Aureus (++)	Middle Meatus
40 Diphtheroids	12 Diphtheroids	
June 4, 1934		
30 Hemol. Staph. Aureus	200 Hemol. Staph. Aureus	Middle Meatus
No Diphtheroids	A few Diphtheroids	

July 12, 1934 40 Hemol. Staph. 20 non-Hemol. Staph.	30 Hemol. Staph. 4 non-Hemol. Staph.	Middle Meatus
August 11, 1934 7 Hemol. Staph. Aureus 10 non-Hemol. Staph. Aureus 3 Diphtheroids	18 Hemol. Staph. 3 non-Hemol. Staph. Aur.	Middle Meatus
September 13, 1934 6 Hemol. Staph. Aureus (++++) (unusually wide zone) 1 Sarcina	200 Hemol. Staph. Aureus (++++) wide zone (Pt. had a bad cold)	Middle Meatus
December 28, 1934 25 Barred Diphtheroids 15 Large Gram-Negative Baccilli 10 Staph. Aureus	60 Diphtheroids 8 Staph. Aureus	Middle Meatus
February 2, 1935 40 Diphtheroids 12 Gram-Negative Baccilli	30 Diphtheroids	Middle Meatus

MR. C.

Diagnosis: Chronic Hypertrophic Rhin.

"A" Cultures	*"B" Cultures*	*Cultures from*
April 17, 1934 Moderate growth of Hemol. Staph. Aureus and non-Hemol. Strep.	Heavy growth of Staph. Aureus. No Strep.	Middle Meatus
May 29, 1934 Heavy growth of Diphtheroids and Staph. Aureus	About 300% increase Moderate growth of Diphtheroids and Staph. Aureus 20 non-Hemol. Strep.	Middle Meatus
June 12, 1934 Very heavy growth of S. Aureus	Reduced to 25% of "A"	Middle Meatus
July 7, 1934 Very heavy growth of Diphtheroids and Staph. Albus Scattered Staph. Aureus + Hemol.	40 Diphtheroids 8 Staphlococcus Albus	Septum
August 26, 1934 140 Staphlococcus Albus — Hemol. Heavy growth of Diphtheroids	75 Diphtheroids 3 M. Catarrhalis	Middle Meatus
October 14, 1934 12 Gram-Negative Bacilli 100 Diphtheroids	20 Diphtheroids	Middle Meatus
December 12, 1934 160 Staph. Albus 4 Diphtheroids	50 Staph. Albus 2 Gram-Negative Bacilli	Septum

Cultures taken from Septum ..... 80% reduction to sterile cultures
Cultures taken from Middle Meatus ..... Variable
Cultures taken from Superior Meatus ..... About 70% reduction

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In studying the available literature to obtain a list of the organisms normally found in the nose, to serve as a means of comparison with the cultures we obtained, it was found that very little work had been done in tabulating them. Dr. Hans Zinnser[4] of the Harvard Medical School referred the authors to Neumann's tabulation of 1902. Shibley, Hanger & Dochez in 1926 carried out studies of the normal nasal bacterial flora at Columbia University and the Presbyterian Hospital, New York, and found that the percentage of staphylococcus was 92% and diphtheroids 79%, with others varying from 36% downward. Two years later in 1928, Noble, Fisher, & Brainard[5] in the Bacteriological Laboratory of the Medical Division, Metropolitan Life Insurance Company, took serial cultures from the nose well back through the middle meatus. Few colonies were obtained, usually 80 to 100% staphylococcus albus, less frequently diphtheroids. Our percentage of findings of the staphylococci and diphtheroids were somewhat lower than that of these investigators, but we also found that they predominated. Küster,[6] Jena, 1929, who summarized the work on this subject, has concluded that we cannot speak of characteristic nasal flora, but feels that any organisms with which a man may come in contact through the air, with the exception of diphtheroids, may be transient in the nose. The majority of organisms 3/4 to 4/5 are filtered out in the vestibule. The sinuses themselves are ordinarily considered to be sterile. Any bacteria that may enter are swept out again through the ostium

by the action of the cilia unless some pathological condition exists which renders their growth favorable.

A number of the cultures studied showed the staphylococcus albus, usually considered of low virulence as compared with staphylococcus aureus, exhibiting clear hemolytic zones of unusual dimensions, sometimes attaining a diameter of one centimeter or more. We believe that this was probably an indication of the increased virulence of the organism. In the routine nose cultures taken at the State Laboratories, hemolytic staphylococcus albus colonies have been encountered but rarely. The media employed was blood agar plates. When this investigation was first begun, various kinds of media were utilized, but it was eventually found more practical to carry out the initial culturing on blood agar plates, which were incubated as promptly as possible and examined at the end of 24 to 48 hours.

SHIBLEY, HANGER & DOCHEZ 1926

THE BACTERIA PRESENT IN THE NOSES OF NORMAL INDIVIDUALS

Staphylococcus Albus	92.0%
Staphylococcus Aureus	36
Diphtheroids	79
Staphylococcys Citreus	10
Hemolytic Streptococcus	0.4
Non-Hemol. Streptococcus	.7
Gram-Negative Cocci	.1

ZINSSER & BAYNE-JONES 1934

THE BACTERIAL FLORA IN THE NOSE AND ACCESSORY SINUSES

Neumann in 1902 Studied the Nasal Secretions of Over 200 People, 111 Supposedly Normal

Pseudodiphtheria (probably including Diphtheroids)	98-100%
Staphlococcus Albus	98
Staphlococcus Aureus	30
Streptococcus Lancellatus (probably Pneumococcus)	4
Friedlanders Bacilli	6
Micrococcus Citreus	12
Colon Bacilli	12
Streptococcus	2
Moulds	20
Sarcinae	4
Lactis Aerogenes	4
Yeasts	2

"A" CULTURES*

TAKEN FROM THE NOSE BEFORE TREATMENT

Staphlococcus Albus	69.5%
Staphlococcus Aureus	37
Hemolytic Staph. Albus	15
Hemolytic Staph. Aureus	20
Streptococcus Viridans	12.5
Hemolytic Streptococcus	4.5
Non-Hemol. Streptococcus	16
Diphtheroids	27
M. Catarrhalis	12.5
Pneumococci	9
Gram-Negative Bacilli	12.5
Gram-Positive Bacilli	5.5
Pfeiffer's Bacilli (Influenza Bac.)	5.5
Diphtheria Bacilli	1.5
Sarcina	.5
Yeast	1.5
M. Tetragenous	.5
Staphlococcus Citreus	1
Pharyngis Siccus	.5
Moulds	3

"B" CULTURES*

TAKEN FROM THE NOSE AFTER TREATMENT

Staphlococcus Albus	48.5%
Staphlococcus Aureus	26.5
Hemolytic Staph. Albus	8
Hemolytic Staph. Aureus	11.5
Streptococcus Viridans	11
Hemolytic Streptococcus	5
Non-Hemolytic Strep.	9.5
Diphtheroids	21
M. Catarrhalis	6
Pneumococcus	1.5
Gram-Negative Bacilli	6.5
Gram-Positive Bacilli	3.5
Pfeiffer's Bacilli (Influenza Bac.)	4.5
Diphtheria Bacilli	0
Sarcina	0
Yeast	0
M. Tetragenous	0
Staphlococcus Citreus	0
Pharyngis Siccus	0
Moulds	1
STERILE CULTURES	8%

**Results Obtained from an Average of 200 Cultures*

Probably a higher percentage of pneumococci would have been found if mouse inoculation could have been employed on each culture. No anaërobic culturing was attempted as it was not considered practical for this paper. A few gram negative bacteria were further identified as to species in order to show that some intestinal species are present in the nasal cultures.

Regarding the temperatures at which nasal organisms are killed, no definite figures were given, though some work had been done by Carpenter, Boak and Associates,[7] to determine the thermal death times within the range of 39°C. to 42°C. Practically all of the organisms commonly found in the nose belong to the meosphilic group which are killed after 10 to 30 minutes exposure to temperatures ranging from 113°F. to 131°F. The temperatures reached with diathermy treatments were beyond this range. Many of the bacteria were either killed or markedly attenuated. In this study we find, as have others, that the staphylococcus is the most highly resistant of the common non-spore forming pathogemic organisms. Streptococcus viridans also proved to be very resistant and the pneumococcus least resistant. According to the lit-

erature there does not seem to be much difference in the temperatures at which bacteria are killed, in vitro or in vivo.

It has been determined[8] that the great majority of normal organisms can be destroyed at a temperature of 140°F. (60°C.) over a period of 30 minutes. In general, however, it has been assumed that the temperature range for the development of any microbic organism does not generally exceed about 86 to 104°F. (30-40°C.). Thus the majority of organisms will grow in about the range from 46.4-59°F. (8-15°C.) up to 104-122°F. (40-50°C.)

It is not necessary for the intra nasal temperature to be brought up to the so-called "death point" to bring about the destruction of the pathological organisms present. If the temperature can be brought up to a point sufficient to inhibit their activities the normal defense mechanism of the nasal mucosa—the mucus, ciliary action and phagocytosis—will in time eliminate them. The dragging effect also plays an important part. According to Hilding[9] the dragging effect on the layer of mucus is so great that the cilia about the middle of the nose can clean the preturbinal areas, where no cilia exist, by tugging back the mucus layer.

In order to determine the degree of temperature in the nose resulting from the use of diathermy a special thermometer was constructed. This, however, proved to be unsatisfactory due to its bulk. Through the co-operation of the Leeds & Northrup Company of Philadelphia, a special thermocouple was devised to be used with their potentiometer No. 8863. This thermocouple consisted of a junction at the end of iron and constantan (a copper-nickel alloy) No. 30 silk enamelled wire. The wire

POTENTIOMETER No. 8863

was coated for about six inches from the junction with Schenectady varnish and bound together in a silk jacket. To prevent the fine wire causing injury or puncturing the nasal membrane, the junction was welded together in the form of a smooth bead 1 m.m. in diameter. The potentiometer current was checked at frequent intervals and the scale was adjusted at zero to correct any changes in the battery. It was corrected to 0.15°F.

The tampon was prepared by enclosing both the diathermy tape and the potentiometer in the cotton tampon, separating the bead, however, from direct contact with the tape. The extreme scale range of the potentiometer was for 125°F. With this procedure the needle would go to the extreme of the scale and register in addition from 5 to 9 points on the galvanometer scale, which would be the equivalent of about 135°F. Since this method gave the temperature of the core of the tampon but did not give a true reading of the temperature of the nasal cavity, a change was made in the arrangement of the thermocouple. Instead of being enclosed with the diathermy ribbon, the thermocouple was joined to the outside of the tampon with a wisp of cotton, leaving the bead free in the middle meatus. It was thus possible to secure a reading of the temperature obtained in the nose that was fairly accurate. Before this procedure was carried out the temperature reading on the potentiometer scale was noted (i.e., room temperature). As the tampon and thermocouple were inserted into the nose, the needle would rise as a result of the intra-nasal warmth. The rise was rapid at the onset, increasing more gradually as the reading approached the nasal temperature. At the end of 5 minutes an average temperature of 95.5°F. would be recorded ranging from 92.6° to 97.4°F. which would occasionally be reached, particularly in acute infections. The potentiometer was adjusted with the scale at zero before each patient was treated to minimize the percentage of error.

Treatment was begun at 250 m.a. and increased gradually until a comfortable sensation of warmth was obtained without discomfort. The average patient would tolerate about 400 to 450 m.a. readily and which usually could be increased to 500 m.a. The differences in the current were due to the differences in the patients' tolerance as well as to the thickness of the tampon and the amount of solution with which it was impregnated. These were variable factors, but only within a narrow limit. When the maximum temperature was obtained, increasing the current would only result in a sense of discomfort to the patient without any material increase in temperature as noted on the potentiometer. As the solution would be absorbed at the

end of about ten or twelve minutes the temperature would slowly begin to recede.

The temperature readings of a large number of cases were taken and averaged as follows:

TABLE 1

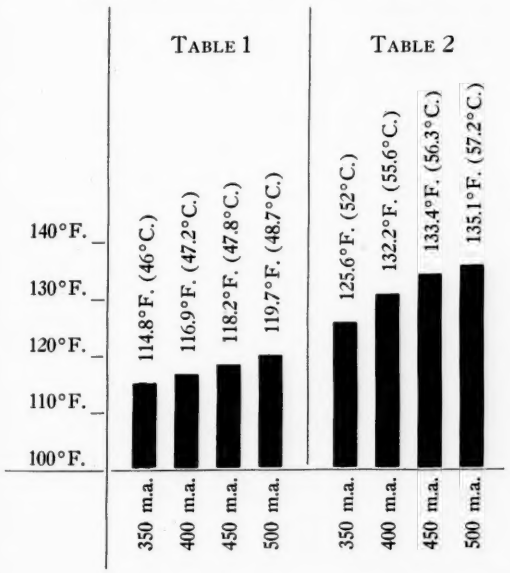
350 m.a.	114.8°F.	46.0°C.
400 m.a.	116.9°F.	47.2°C.
450 m.a.	118.2°F.	47.8°C.
500 m.a.	119.7°F.	48.7°C.

(These readings were taken with the thermocouple outside of the tampon.)

The temperature readings of the series with the thermocouple enclosed in the tampon together with the diathermy tape were as follows:

TABLE 2

350 m.a.	125.6°F.	52.0°C.
400 m.a.	132.2°F.	55.6°C.
450 m.a.	133.4°F.	56.3°C.
500 m.a.	135.1°F.	57.2°C.



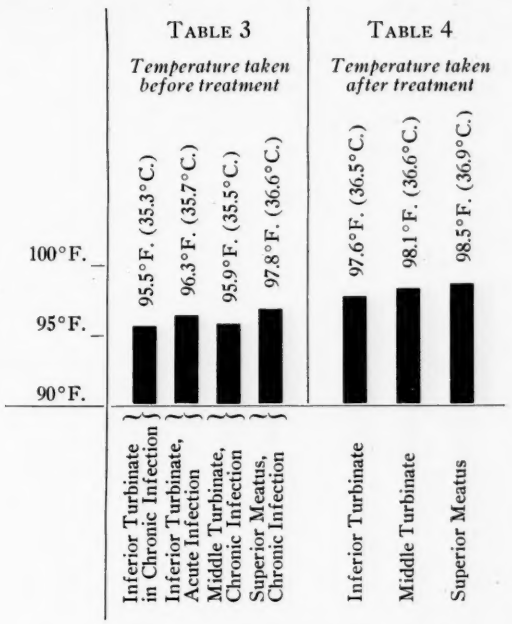
The nasal temperature of about 50 patients was taken, averaged and tabulated in this manner:

Average Temperature

Inferior Turbinate:		
In Chronic Infections	95.5°F.	(35.3°C.)
In Acute Infections	96.3°F.	(35.7°C.)
Middle Turbinate	95.9°F.	(35.5°C.)
Superior Meatus	97.8°F.	(36.6°C.)

The Temperature Taken Immediately After Treatment

Inferior Turbinate	97.6°F.	(36.5°C.)
Middle Turbinate	98.1°F.	(36.6°C.)
Superior Meatus	98.5°F.	(36.9°C.)



These figures were subject to wide variations, at times as much as a degree or more due in part to the very small surface of the thermocouple (1 m.m.) in contact with the mucosa. The above figures are the result of a general average of the entire series. Variations were found in the temperatures taken of the same patient in both nostrils, varying as much as a degree. The temperatures likewise were inconstant and would vary at different times. Also those with acute infections would show a higher reading.

These results vary from the reports of previous investigators. A difference was noted in the temperatures of the inferior and middle turbinates which was not in accordance with the findings of M. Krukower.[10] The average temperatures were higher than those determined by A. J. Cone.[11] He found the average normal temperature of the inferior turbinate to be 89.6°F. Both men used different methods in determining these findings.

A rapid loss in the temperature of the inferior turbinate was noticed after the treatment. When the tampon was removed and the temperature taken immediately it would register one temperature and as the reading was being taken would drop from .5° to as much as an entire degree within a few seconds. This was attributed to the fact that the rich blood supply of the inferior turbinate carried off and distributed the excess heat with great rapidity.

The fineness of the thermocouple made it possible to secure readily temperature readings from the different areas of the nose, but also made some fluctuation inevitable. Having the patient hold his breath during the period the readings were taken helped but did not entirely eliminate the fluctuations.

Name of Patient	Mr. Wm. B. ———
History	Subject to frequent head colds. T&A 2 years ago.
Diagnosis	Chronic Rhinitis.
Symptoms	Feeling of fullness in the head. Lassitude. Difficulty in breathing. Post-nasal discharge. Digestive disturbances.
Examination	Septum deviated to the left coming in contact with middle turbinate. Hyperplagia of mucous membrane, more marked on left side.
Temp. before inserting tampon (room temp.)	74.5°F. (23.6°C.)
Temp. after inserting tampon (nasal temp.)	96.2°F. (35.6°C.)
Inferior Turbinate	95.2°F. (Temperatures
Middle Turbinate	95.8°F. taken before
Superior Meatus	97.5°F. treatment)
Temp. during Rx.	
350 m.a.	113.6°F.
400 m.a.	116.3°F.
450 m.a.	119.5°F.
500 m.a.	119.7°F.
Range of Comfort	450 m.a.
Temp. following Rx.	
Inferior Turbinate	97.1°F.
Middle Turbinate	98.4°F.
Superior Meatus	98.6°F.
The heat is retained in the tampons after treatment	8 minutes.
Remarks	Copious discharge for several hours after treatment.

The above chart is illustrative of the routine examination that was carried out, particularly in reference to the potentiometer readings. Upon bringing the diathermy to a point of comfortable heat, increasing the current did not bring about a corresponding rise in temperature. As noted on the chart the difference in temperature from 450 m.a. to 500 m.a. was only .2° F. and caused a sense of discomfort to the patient.

The most common symptom was post-nasal discharge and hawking; headache, nasal obstruction, lassitude, dullness, and a feeling of heaviness of the eyes. Occasionally no symptoms were complained of and the condition discovered only in the course of routine examination. The patient considered them relatively unimportant or not sufficiently annoying to be given attention. Hawking and spitting, particularly in the morning, would be taken as a matter of course. Many of the cases showed little apparent pathology, yet after the treatments a mucoid or mucopurulent secretion would occasionally be found in the middle meatus and these cases would in time be followed by clinical improvement.

The purpose of the treatment is directed to re-establishing the normal conditions of the nose by improved aeration, drainage and ventilation; by stimulating the secretion of the glands situated in the mucosa, which possess a decided inhibitory power to the further growth of the invading organisms. Thus, although we may find similar bacteria reappearing in cultures taken a year or so later, they seem to produce no clinical symptoms apparently because the recovery of the mucosa is capable of withstanding the effect of the toxins they produce, or because the virulence of these organisms had become attenuated, or probably the result of both.

The relation of chronic sinus infection to respiratory infections and allergic conditions is becoming more significant. In a series of 170 Hay Fever and Asthma[12] cases examined, 142 or 84% showed some demonstrable nasal pathology. The use of diathermy in the treatment of these cases brought about favorable results and established this form of treatment as a valuable adjunct in the treatment of Asthma.

A common complication of chronic nasal or sinus infections had been gastro-intestinal disorders. One who has seen and treated a number of these rhinological conditions could not fail to be impressed with the frequency with which gastro-intestinal symptoms are found. Nevertheless this condition appears to have attracted very little attention. On several occasions patients have been subjected to extensive gastro-intestinal studies when a nose and throat examination would have revealed the cause. "Heart-burn" and gas eructations that patients frequently complain of are apparently due to the action of the mucopurulent discharge upon the gastric secretions. There may be little or no antero-nasal discharge and often the patient is entirely unaware of the profuse post-nasal discharge that is present. He develops the habit of hawking and spitting or of swallowing it when the former is not convenient until it becomes entirely automatic. This habit is not an uncommon one among middle-aged individuals who accept it as a matter of course. Occasionally large gobs of yellowish or brown mucus may be found on the pharyngeal wall. On questioning, the patient will usually confess to an offensive odor from his mouth in the morning. In atrophic conditions where considerable crusting is also present it is not uncommon for the patient to lose his breakfast at times. Another symptom that occurs frequently is a dry morning cough which is invariably due to local irritation resulting from the accumulation on the pharyngeal wall.

While it is obviously impossible to expect sinuses with chronic infection of long standing, showing marked fibrosis, glandular degeneration of the epithelium, or a chronic periostitis, to return to normal, nevertheless it may be possible to secure sufficient improvement with amelioration of symptoms to justify the use of conservative measures. The local treatment should be augmented with a carefully regulated diet, correction of faulty habits as excessive smoking, prolonged confinement in overheated and poorly ventilated rooms, and general medical care. Radical surgery should be resorted to only when such measures fail or where there are extensive areas of diseased bone, or marked cystic degeneration, or where the health of the patient requires early surgical intervention. In these cases the external operation is probably the most satisfactory method of reaching all of the cells involved under direct view.

From the work carried out these conclusions were drawn:

1. That diathermy is beneficial by producing an active hyperemia which increases the absorption of the silver protein, and in accelerating repair processes.

2. That the silver protein will penetrate injured epithelium to a greater degree than the normal intact mucosa.

3. That a comparatively weak solution (7%) is as effective as the 20 to 40% silver protein solutions commonly in use without producing the local irritation that the stronger solutions may cause.

4. That the intra-nasal temperature can be raised to a sufficient degree to attenuate or destroy many of the surface organisms without causing discomfort or injury to the tissues of the host.

5. That the condition of the mucosa is improved, enabling the normal defense mechanism of the nose to function more effectively against invading organisms.

6. That the type of the organisms undergoes change as the infection subsides.

7. That the intra-nasal temperature was higher in the presence of acute infections.

8. That clinical amelioration can be effected in many of the nasal infections, and cure in some, without the necessity of surgical intervention that would necessarily entail the loss of some essential structure.

9. That gastro-intestinal disorders are a common complication of chronic nasal or sinus infections.

10. That nasal and sinus mucosa regenerate well despite infection.

* * *

The authors wish to express thanks to Lester A. Rounds, Ph.D., Director of the Rhode Island Public Health Commission, for his co-operation and that of his department. All of the cultures and pathology work was carried out in the State Laboratory.

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EDITORIALS

JOHN W. KEEFE

In the death of Dr. John W. Keefe the medical profession of Rhode Island lost one of its most distinguished members. He was one of a group of surgeons who developed the field of surgery in this state after the introduction of Aseptic Surgery. Other members of his group were Gardiner, Collins, Hersey, and Godding. He was particularly fond of Dr. Gardiner with whom he was more or less associated in the early years of his practice.

Dr. Keefe was younger than the members of this group and early determined to make surgery his specialty.

He was progressive in his methods and belonged to the national and New England surgical groups in the activities of which he was a leading member. He kept in touch with the progress of surgery also by frequently visiting surgical clinics both in this country and abroad.

He was frequently introducing new technique and operative and post-operative procedures. He was a member of the surgical staff of the local hospitals but the greater part of his time was devoted to the surgical services at the Rhode Island Hospital where he was a moving spirit in the surgical department for many years.

At the height of his career he was the most active surgeon in the state. He was a good surgeon, widely known and successful financially. He was industrious and active and helped several surgeons and physicians to get established in their early days of practice.

Dr. John Keefe will be remembered as a very successful surgeon whose energy and skill added a new scientific impetus to surgical work as practiced by somewhat older surgeons who were practicing at the time when aseptic surgery was first introduced.

PRESCHOOL CHILD WELFARE AND SCHOOL HEALTH EXAMINATIONS

Lately there has been an increased interest in the effectiveness of the different child welfare activities, and also in the question of which services and how much of them should be furnished free. There is no question of course that in the past the "Child Health" activities have been of great value both directly and in educating the community. In view of differing opinions as to how far and in what direction these activities should be carried, a progress report of a committee of the American Academy of Pediatrics is timely.

This report recommends that the state or district medical societies through a public health committee should provide a program whereby more children of all economic levels would receive physical examinations, immunizations and general preventive care especially up to the school age. The assumption is that in most communities the indigent will be seen in clinics and all others by their own physicians. The problem is chiefly one of arousing the interest of the physicians and the public.

Another item in the report is a suggestion rather than a definite recommendation that school examinations be reduced in scope to inspections. The argument is that school examinations cannot and should not be complete enough and careful enough to constitute a health examination, that they are second rate in efficiency and poor as health education.

The question of the proper type of school examinations is not one on which it is possible to give a quick judgment. About the importance of increasing preschool health work by private physicians there can be no difference of opinion.

DOCTOR

To be called Doctor was once of much more significance and title of which a physician could well be proud. Nowadays the title is given to members of so many cults and to so many persons who have been given a doctorate in some branch of learning that the significance of the title has lost its original meaning, for it was originally used almost entirely in addressing a physician. The name has been cheapened and has lost its true meaning and dignity.

No branch of learning of course has any copyright on the term doctor. Educational institutions give degrees of doctor in many branches of science and learning. It is too late and not feasible to restrict the title to physicians alone. It will continue to be used in conversation to indicate special education in several legitimate fields of knowledge.

However, when the abbreviation Dr. is put on an office sign before the name of persons who are practicing some of the professions, so called, which can hardly be compared with the profession of medicine there is real cause to complain. Such practitioners are masquerading under a title long ago made dignified and significant in the eyes of the public.

Some of the irregular practitioners are doing this in the city and state, and the state health authorities have not been able to get any backing from the attorney general to stop it. Legally there is, probably, no way to stop it. The most that can be done, perhaps, is to make such men put their degree after the name. Even this might entail much legal bickering.

It might be that physicians themselves might prevent such irregular practitioners from masquerading as regular physicians by voluntarily dropping the title Dr. on their office signs and appending only the degree M.D. At any rate it would seem that it was a matter that the State Medical Society might well take under consideration.

SOCIETIES

Providence Medical Association

The regular monthly meeting of the Providence Medical Association was called to order by the President, Dr. William P. Buffum, Monday evening, June 3, 1935, at 8:50 o'clock. The records of the last meeting were read and approved.

An announcement of the golf tournament to be held June 26 at the Wannamoisett Country Club

was read. The President appointed the following members for the golf committee: Dr. Joseph P. Leone, chairman; Drs. Charles O. Cook, B. H. Buxton, N. A. Bolotow and Richard McCoart.

Dr. Albert W. Rounds read an obituary of Dr. Clifford H. Griffin. It was voted to spread this on the records and send a copy to the family.

The President called attention to the work of the committee on changes in the meeting hall. Members sitting well back thought the acoustics improved by the sound-proofing material on the ceiling; the formerly dingy walls were pleasing with their fresh paint and portraits; the speaker's platform, lowered to a height of about a foot, looked better and was much more convenient; and the upholstered chairs, scientifically arranged in curved ranks, evidently adapted themselves pleasingly to the anatomies of the audience.

The Standing Committee having approved their applications, the following were elected to membership: Richard S. Arlen, Mark A. Yessian, George J. Dwyer, Edward J. West, Bruno G. DeFusco, Mario L. Palmieri, America Del Selva and Walter S. Jones.

The paper of the evening was on "Allergy: Recent Advances in the Management of Asthma and Eczema," by Dr. Francis M. Rackemann of Boston. He gave as his definition of Allergy, "The capacity of certain individuals to react to certain substances harmless to normal individuals." It occurs when they have been sensitized by previous contact. By means of diagrams on the blackboard he demonstrated the normal delayed reactions to serum and the sudden severe abnormal reactions. Although thousands of doses of diphtheria antitoxin are given without accident, we must always be cautious in testing, especially where there is a history of serum disease. He showed charts demonstrating reactions which are always pronounced in character and necessary for diagnosis. A careful history may simplify the diagnosis with accurate noting of the dates of beginning and subsiding of attacks. Besides the extrinsic causes, sinus trouble, emphysema, diet, etc., may make the difficulty, and an increasing number of cases are coming from drugs.

The meeting adjourned at 10 P. M.

Attendance 106.

Collation was served.

Respectfully submitted,

PETER PINEO CHASE,
Secretary.

RHODE ISLAND MEDICO-LEGAL SOCIETY

The Rhode Island Medico-Legal Society celebrated its 50th Anniversary with a dinner at the Narragansett Hotel on June 27th, 1935. Seventy-eight members and guests were present.

The speakers were: Dr. Fritz W. Gay, President of the Massachusetts Medico-Legal Society; Dr. Timothy Leary, Medical Examiner of Suffolk County, Mass.; Hon. Charles A. Walsh, Associate Justice of the Superior Court of Rhode Island.

The following officers were elected for 1935-36; Benjamin F. Tefft, M.D., President; Sigmund W. Fischer, Jr., Esq., Vice-President; Jacob S. Kelley, M.D., Secretary-Treasurer.

The Anniversary Committee were: Creighton W. Skelton, M.D., Chairman; Henry A. Jones, M.D.; Benjamin F. Tefft, M.D.; Henry D. C. Dubois, Esq.; Henry M. Boss, Esq.

The following committee were appointed to revise the By-Laws and to create a Committee on Grievances: Dr. Creighton W. Skelton, Chairman; Archibald C. Matteson, Esq.; Henry D. C. Dubois, Esq.; Dr. Harry S. Flynn.

THE RHODE ISLAND MEDICAL SOCIETY
REPORTS OF COMMITTEES
(*Continued from August Issue*)

REPORT OF COMMITTEE ON PUBLIC HEALTH CLINICS

The Committee on Public Health Clinics submits its second annual report.

During the past year the Committee has directed its attention toward State operated clinics for Child Welfare, Tuberculosis and Mental Diseases. In addition post-graduate courses for physicians were offered during April at the local hospitals. Through the courtesy of the *Journal* a list and description of all courses appeared in the March number. The response was not all that could be hoped for. We profit by experience, however, and the Committee now has other plans.

At a conference with the former Public Health Commission a sub-committee suggested that Child Welfare and Diphtheria Immunization Clinics conducted by the State be limited to the indigent only; and that State Welfare Nurses call on discharged maternity cases only with the knowledge and consent of the family physician; furthermore we suggested that the Diphtheria Immunization work in any suburban locality be done by the State Health Department only with the co-operation of the local medical men of that particular community.

The Public Health Commission, after considering the matter, reported that they would be glad to turn over the work to the profession whenever the profession in turn would evince a willingness and a demonstrated ability to do the work in at least as an efficient manner as the Commission had conducted it.

In response to this, your chairman, with the help of the physicians in Pawtucket, inaugurated a Diphtheria Immunization Campaign. During the month of January a meeting of all local doctors was held at the Memorial Hospital in Pawtucket and plans were made to conduct a campaign during February.

Sixteen different physicians spoke before as many different Parent-Teacher Associations and explained the plan; the *Pawtucket Times* was more than generous in its treatment of the news events connected with the campaign and devoted much space and prominent display to all items. The local theatres, at their own expense, displayed a strip of film between each feature picture advertising the campaign. All clergymen read a letter from the Health Department from the pulpit and urged their congregations to co-operate. The local department stores displayed black and yellow placards furnished by the H. K. Mulford Co., and druggists passed out black and yellow circulars also supplied through the courtesy of the H. K. Mulford Co. Four of the leading drug stores ran advertisements in the paper over their name, calling attention to the Diphtheria Immunization Campaign. The School Department sent home mimeographed notices by the school children. A list of physicians co-operating was published twice a week on the second page of the paper and announced that they would be in their offices from 10:00 to 11:30 A. M. Wednesday and Saturday mornings for immunization work only. All physicians in the city co-operated in the plan except those who limited their practise to a specialty. For those who could afford it a fee of $1.00 was charged for each injection. No one was refused treatment and for those on public aid lists the City Health Department furnished toxoid free.

At the conclusion of the campaign the *Pawtucket Times* ran a full length double column editorial extolling the work and urging physicians to continue working along similar lines in disease prevention.

A total of 1,394 children were immunized in eight sessions which is remarkable inasmuch as the last report of the State Public Health Commission states that 2,023 were immunized by the State clinic in the entire year. This proves that well directed disease prevention measures in the hands of local medical men will easily and much more rapidly control the spread of communicable diseases than the slower and more impersonal method formerly employed by the State Health Department.

If the medical men in any given community will unite in such a project it will:

1. Dramatize their relationship to the health of the community.
2. Emphasize the "family-physician" relationship.
3. Eliminate the "clinic problem."
4. Advance the health of the community more rationally and more expeditiously than the slower process of State clinics with its attendant discordant note of interference with problems which should and could be handled by local physicians.

In the furtherance of the plan to place the medical men in each community responsible for and actively engaged in disease prevention, the Committee has attempted to establish local medical groups, or clubs, whose function it will be to co-operate with this Committee inasmuch as the chairman of the local group will meet with this Committee. In East Providence much has already been accomplished in this regard and plans are under way to conduct a Diphtheria Immunization Campaign in the near future.

Other groups are in formation and your Committee is ready to lend its enthusiasm and support to such movements.

During the year many changes have taken place in our State government. Our contact work with Health and Welfare officials had to be held in abeyance for some time, as a result. At present we have assurances from the heads of the Health and Welfare Departments that they will co-operate to the fullest extent and we confidentially feel that the solution to our problems in that direction is at hand.

The Department of Health has agreed to limit its activities to the indigent and that only those referred by public aid directors or their family physician will be given care or treatment by the department. The problem of the Tuberculosis and Mental Clinics is being satisfactorily handled and arrangements are being made to operate these clinics by local hospitals or by local medical men and in such a manner as to overcome present objections. Conferences have been held with the heads of

departments and institutions involved and the fullest co-operation has been evident. Many matters complained of have already been corrected and more will follow.

As regards the post-graduate courses, your Committee feels that there is a very definite need for such, and is now working on a plan to establish a bureau where any one desirous of taking a short course of instruction in any subject may have courses arranged for him at a nominal fee. The fee is an important consideration because the costs of printing material and advertising runs into considerable money in the course of a year, and the Committee feels that the payment of a small fee insures interest and attention to the courses arranged.

Much of the mimeographed work sent out by the Committee in the past was done through the courtesy of the Rhode Island College of Pharmacy and some assistance was also rendered by the Pawtucket Mental Hygiene Clinic.

The Committee has not yet completed its investigation of all Public Health Clinics, but expects to do so in the next few months—after which time it will formulate and submit the basic principles it considers necessary for a clinic to have the approval of this Society. The Committee again wishes to emphasize the splendid spirit of co-operation evinced by all officials and clinics contacted and it is quite optimistic regarding our ability to find a satisfactory solution to our problems. It is not possible in the space of this report to give a detailed record of our activities, but rather an attempt has been made to summarize our results and report our progress.

Respectfully submitted,
CHARLES L. FARRELL, M.D.,
Chairman

It was voted to accept the report, and continue the committee.

ANNUAL REPORT OF THE COMMITTEE ON MEDICAL ECONOMICS AND LEGISLATION

The Committee on Medical Economics and Legislation held five meetings this year.

The Committee actively investigated all legislation affecting public health and the medical profession.

Joint meetings with representatives of the hospitals, the nursing organizations, public health organizations, Homeopathic Society and the Osteopathic Society were held at the Medical Library in an effort to correlate the various points of view and to formulate a program satisfactory to all concerned.

The Committee also contacted the Rhode Island Pharmaceutical Association and the Director of Public Health as well as members of the House and Senate Committees on Judiciary.

Members of the Committee appeared before both House and Senate Judiciary Committees and urged passage of the Basic Science Law and the Physicians' Lien Act. They also opposed bills extending further privileges to osteopaths; the creation of a Naturopathic Board and the establishment of a public health nurse consultant in the Division of Health.

All meetings were well attended and the individual members worked zealously in an effort to obtain our objectives.

The following bills were considered:

H-585 provided for the appointment of a nurse consultant in Department of Public Health to stimulate and guide the development of public health nursing in cities, towns and rural areas of the state. She would have clerical assistance and salary not exceeding $5,200.

The balance of the Act listed the diseases which shall be reported as dangerous to Public Health and provided for a permanent Tuberculosis register. It appropriated $2,800.00 for the purpose.

This bill was opposed on the basis of privileged legislation and the Committee was of the opinion that all such legislation should emanate from the Director of Public Health.

The bill died in Committee.

Two bills, H-712 and H-714, related to the practise of Osteopathy.

H-714 was badly drawn and was discarded.

H-712 changed the practise of Medicine Act to allow Osteopaths all the rights and privileges now possessed by the regular practitioners of medicine, and further provided that City, Health and School positions be opened to them.

This Bill also removed the restriction against their writing prescriptions.

The bill was opposed by the Committee on the basis that it removed any and all restrictions on Osteopaths and gave them the same standing as regular medical practitioners with qualifications so low that candidates for the practise of medicine with same or similar qualifications are not even allowed to take the examination.

The bill died in Committee.

H-668 amended the general laws to permit the Superintendent of State Institutions to issue burial permits.

Committee took no action on this bill.

H-531, a bill to define Naturopathy and set up an examining board. Although it was claimed that Naturopathy was a drugless healing, the law was phrased to permit the use of powdered herbs and roots.

The Committee opposed this bill on the basis of the danger to public health.

Naturopathic training was proved to be extremely meagre and totally insufficient to allow them to care for the sick.

The bill died in Committee.

H-708, The Basic Science Law set up basic requirements for admission to Examining Boards in the healing art.

The Committee studied the American Medical Association model Basic Science Law and the model act prepared locally by the previous Public Health Commission. It was decided to modify the local act to meet present conditions and to introduce it.

The House Judiciary Committee held a public hearing on the bill which was opposed by representatives of the Chiropractors, Naturopaths and Osteopaths.

Members of the Committee appeared in support of the bill and advanced lengthy arguments in favor of it.

The bill was referred to Director of Public Health by the legislation for his recommendation at the 1936 session.

S-77, an act relating to the registration of nurses, provided for an all nurse Examining Board appointed by the Governor from a dictated list submitted by the nurses. It further provided for an advisory council and it was mandatory on the Governor to appoint the respective presidents of the nursing organization.

The act failed to provide powers and duties for the council. Appointees were not required to be citizens and an out-of-state nurse was to do inspecting at a salary of $400.00.

Our Committee met with the representatives of the nursing organizations and discussed the bill in detail. It was agreed to lend assistance to the nursing organization in framing any needed legislation, but it was felt that this bill did not suit present conditions.

The bill died in Committee.

S-52, an act providing for the application of a Lien on any sum awarded an injured person and provides for payment of doctors, dentists, nurses and/or hospitals.

The Committee sponsored this bill and appeared before the Senate Judiciary Committee in support of it. The bill was opposed at the public hearing by representatives of the Bar Association on the grounds that it would make settlement of small claims difficult; it would interfere with the attorney's Lien and make additional paper work.

Members of the Senate Judiciary Committee agreed to make certain corrections and the bill as amended passed the Senate, but died in the jam of legislation in the House on the final day of the session.

S-95, a bill to regulate sale of certain medicines and poisons, was introduced and favored by the druggists.

The Committee studied the bill and approved it. The chairman and secretary of the Committee appeared at the public hearing in support of it, and letters approving it were sent to Rhode Island Pharmaceutical Association as well as Senators on the Committee.

H-599 imposed new duties on the truant officer in the interests of Child Health.

S-160 regulated practise of Dentistry.

S-148 regulated Hair Dressing.

S-188 regulated Barbering.

S-182 related to the separation of Health Department of Providence and Charles V. Chapin Hospital.

H-763, similar bill.

The Committee took no action on the above.

The labor bill containing provisions for compensation of occupational diseases was lost in the final hours of the legislature.

In view of the attempt to license Naturopathy, the Committee has compiled information and statistics regarding Naturopathy which is now on file at the library and will be available for future use in combating the inroads of this cult.

The Committee has also collected catalogues of all the approved schools of Osteopathy as well as some not approved and is in a position to refute the claim of the Osteopaths as to their training in pharmacology.

Respectfully submitted,

JAMES A. MCCANN, *Chairman*
CHARLES L. FARRELL, *Secretary*

It was voted to accept the report, and to continue the committee.

COMMENTS UPON MEDICAL TOPICS

By MALFORD W. THEWLIS, M.D.

A dry test for syphilis that can be carried out in the office. Dahr, Münch. Med. Wchnschr. 8: 1723, 1934, describes the Chediak test which consists of drying a drop of blood to be examined on a slide, mixing it with the antigen for the Meinicke clarification test, and making a microscopic examination. It is cheap, rapid, simple and reliable and can be done anywhere. It can be used as a rapid first examination but in doubtful cases some of the other serologic tests should be made. (The writer has been doing the Rosenthal test for syphilis in his laboratory for some time. It is apparently accurate and does not require much time; in fact 12 tests can be done in twenty minutes. Naturally it has to be checked with other tests; it is a good test where speed is required. It also helps to eliminate negative sera.—M. W. T.)

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Examination of the cerebrospinal fluid with the new Meinicke clarification reaction (M. K. R. 11). E. Christiani, *Münch Med. Wchnschr. 81: 1660, 1934.* The author feels that the test is specific; that the test is the most sensitive in the diagnosis of tabes.

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The Meinicke reaction (M. T. R.) *in colonial practice.* S. Golovine, *Presse Med., Paris, 42: 1624, 1934,* believes that this reaction (turbidity test) is so simple that it can be carried out in colonial practice. He states that Meinicke's later clarification tests are much less simple. (While the turbidity test is a little less sensitive its technic can be mastered by anyone and can be carried out at the bedside. Syphilis apparently follows a different course in the colonies; the central system not so often attacked. . . . The writer feels that modern medicine requires much more rapid tests for syphilis. In one case alone the necessary delay while waiting for a more complicated laboratory diagnosis caused a loss of several hundred dollars. In blood transfusions it is imperative to do an immediate test. Also in coma. It is the age of speed and it is sometimes too long to wait the necessary two or three days for a thorough diagnosis. Again, I mention the Rosenthal test as answering most of our requirements for immediate diagnosis. With the Kahn standard antigen and cholesterin solution the mixture will keep for several days. Only a small amount of blood is required and the diagnosis can be made in ten minutes by the microscope. We must have some test of this kind to answer patients' requirements. It is necessary, however, for treatment, to know how severe the reaction is. Therefore, it would be convenient to have reports as one to four plus on our Wassermans.—M.W.T.)

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Value of the serologic diagnosis of gonorrhea. Walter, *Dermat. Wchnschr., Leipzig, 99: 1428, 1934,* stresses the value of the complement fixation test for gonorrhea. He states that the reaction remains negative while the gonorrhea is limited to the superficial mucous membrane and becomes positive when the gonococci penetrate the deeper tissues. (Here is a valuable test, quite neglected. In many clinics it is used in differential diagnosis. In fact it is difficult to practice without it. While it is not especially accurate in superficial conditions, it is of value in deep seated conditions, such as pelvic inflammations and arthritis.—M. W. T.)

Blood Iodine in Thyroid Disease. Curtis et al. *The Western Journal of Surgery, Obs., and Gyn., Aug. 1934,* state that the iodine content of human blood can be determined by micromethods. Human blood normally contains about 12 gamma per cent of iodine. This is partly alcohol soluble. The remainder is alcohol insoluble and this fraction is presumably the thyroid hormone. The blood iodine is increased in patients with untreated hyperthyroidism. It is decreased in patients with untreated hypothyroidism to about two-thirds normal. (An accurate diagnosis of thyroid disease consists of basal metabolism estimations—two or three tests on various days if necessary and a blood cholesterol estimation. The blood cholesterol test will help to diagnose certain thyroid disturbances which the basal metabolism test fails to detect. A high cholesterol often indicates myxedema; a low one, toxic goiter; and a normal one, non-toxic goiter. The blood iodine estimation is a valuable addition but it requires considerable technical skill to perform the test.—M. W. T.)

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Roentgen Therapy in Chronic Sinusitis. Butler and Woolley, Department of Radiology, University of Oregon, in *Radiology 5: 528, 1935,* believe that roentgen therapy has a definite place in the treatment of chronic paranasal sinusitis in properly selected cases. There is no damage to normal structures and failure in no way interferes with subsequent surgery should this become necessary.